

Botanical Notes

No. 4

Castillo -

Ferns

Mosses

Phanerogams



fente de
pas.

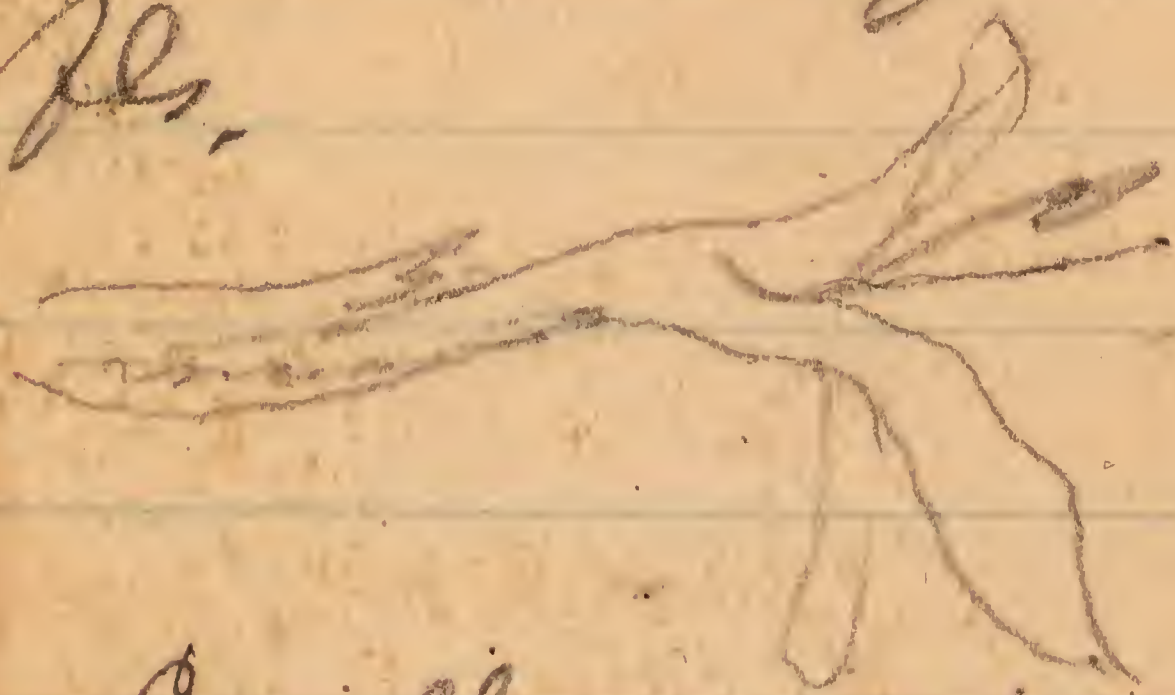
No. 526.

Spiny (prickly) woody vine
with comp. leaves of 4 leaflets,
the 2 term. larger, & flat
folds.

Overhanging the La Juana.

No. 527

A shrub $1\frac{1}{2}$ high, erect, with
term. spike of rather large yellow
fls.



Corolla 2 lipped. upper ovate
entire, obtuse.
Lower 4 lobes, lobes =, ob-lance
ovate, all yellow
sharply hairy outside, fresh.

Calyx of 4 sepals, the 2 at
with lips are broad, fringed,
veins dark green, small.



The 2 others are lanceolate
green, shorter, acuminate
all hairy.

2 narrow green bracts at base of
each flower.

fil. yellow, hairy (sparsely) toward
base, attaches near base of
corolla. Stamen 2, alt. with
lips, exserted, anthers 2 cells,
dehiscent, long, yellow.

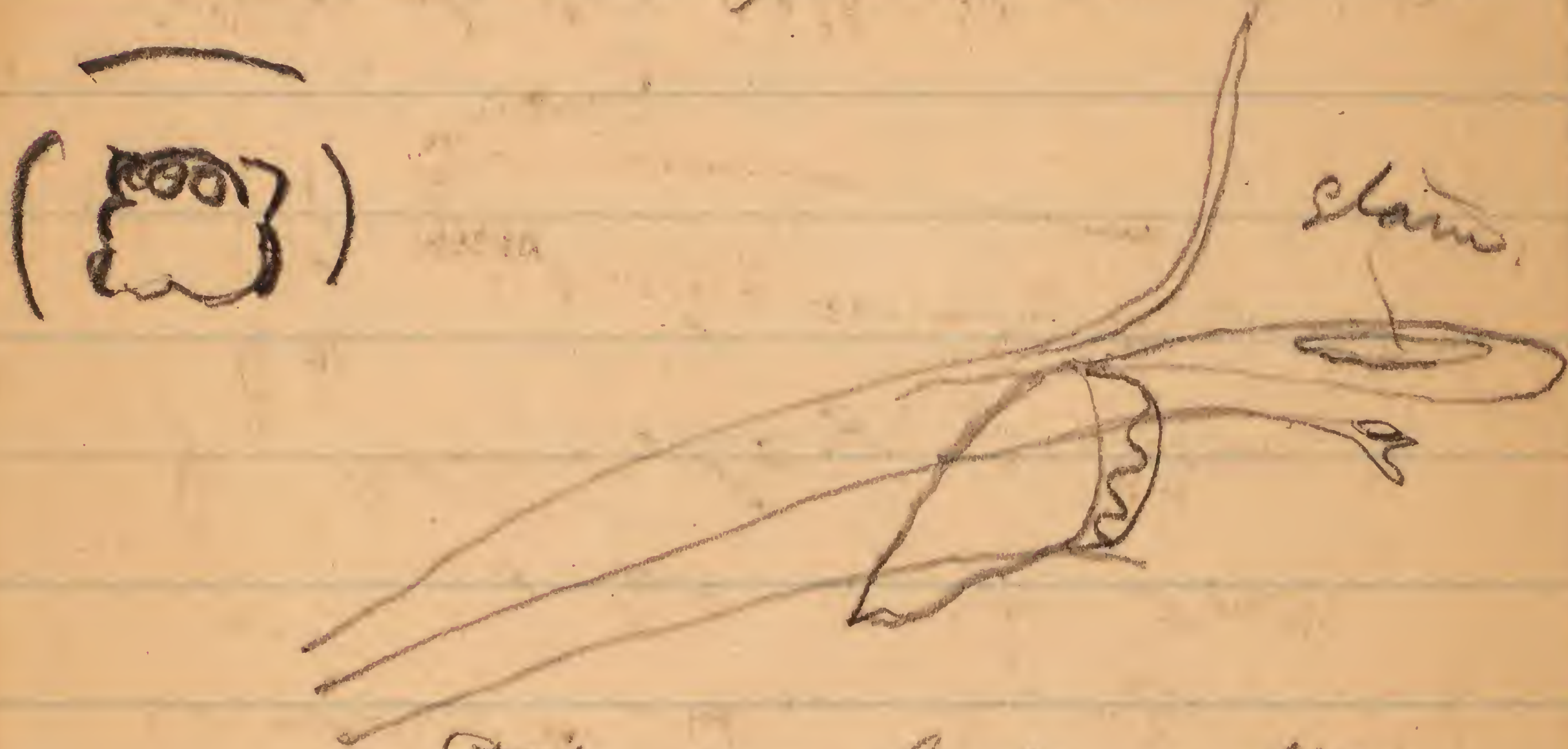


a gland surrounding ovary.
ovary

Style slender, yellowish, exserted, stigma
green, elong. small, 2-lobed.
Ovary inferior, greenish, smooth,
2 celled, a couple of seeds in each cell.
Along the La Jua.

528.

alt. 1 rank (1 mile) leaves
spike of fls. at end.
stem spirally twisted at top



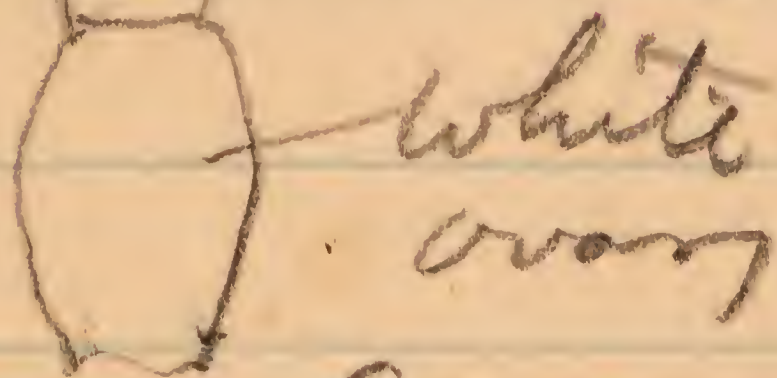
Style very slender, white,
smooth, stigma 2 lobes, with a
sort of spur on one side.

Stamen 1, filament brown,
glabrous, red, exserted, anther
cells 2, yell, long. $\frac{1}{2}$ on tube of
corolla.

Corolla with narrow about 5' lobes
border, lobes recurved. Lobe
red. Calyx of 3 (or 5?) lobes
3 large anyway) red, as

one large one above & 2 below,
a red bract at base of each fl.

red (a calyx?) 3 lobes.



white
ovary

Ovary 3-angled



3 celled, ovules

numerous, stalked.

ovary superior
smooth

Along the La Juana.

529

Large leaved tree, on bank
of La Juana. Fruit large
round, with a lot of light
"erky" seeds.

530

Shrub 6' high, hanging over
the La Juana.

Fls. yellowish, in racemes.

Lev. acum. oblong-ovate.

531

(?)

Small tree, 4' diam, 15' high.

Over La Grana

Los. oblongate, obscurely
crenate, alt.

Fls. small wh. in thyrse?!


~~in thyrse of leafy.~~

~~Calyx hairy, whitish, 5 lobed~~

Calyx of 5 ovate, small sepals,
whitish

Corolla of 5 white, curled,
large petals, on calyx

Stamens 5, on calyx, in short
white fil. anthers elong. yellow
2-celled, erect. Style slender, white

just beyond stamens, smooth, stigma
minute, term. 

Ovary superior, whitish, smooth
one-celled(?)

General aspect of a small column
flower.

532

Solanum - tree 15' high,
4' in diam. branching, bark
gray, leaves ^{almost} entire, fls.
white

La Guana



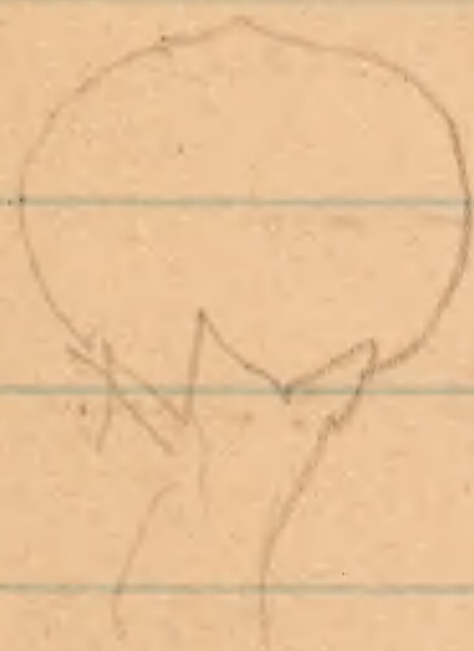
fls. in lobes of calyx
hairy

Corolla white
anthers yellow,
stigma green.

5 parts.



ovary superior
smooth, white



fruit
ovary 2-celled

533

Tree, medium size, branching,
spreading; gray.

Lev. pinnate, comp.

Fruit red, with black seed
surrounded by pulp.

Poisonous.

Along La Juana

534

Lev. in whorls of 4, lower
oblong, large, fls. in
thyrse, small, whitish.

Perrins.

Shrub overhanging San
Juan (up.) (may be small
tree?)

very inferior 3 cells, and
at least 2 in each cell.

535

Tree along the San Juan.
Lo. Camp, fl. white,
in heads, (Pinnate lvs.)
Fls. in hds. or short spikes

There is a large gland on upper
side between each pair of leaflets

Stamens very many, fil.
white, slender, smooth
anther minute, 2-lobed
Fil. unite at base into a
tube, or corolla

Calyx & corolla each with 5
small lobes

Ovary smooth, elongated, superior
whitish, style very slender
stigma minute, terminal

536,

Phryma-like - coarse wren
 $1\frac{1}{2}^{\circ}$ - 2° high. Along the
Savannah

537 (chay)

Coarser Begonia Ranging
from trees - Savallos &
La Juana

Per. opp. fruit with hooks, fruit
Humped. fl. x 1

Sepals 5 scarious, erect, green midrib,
hairy.

Stam. 5, opp., anthers 2-celled, yellow

Corolla x. Filaments smooth, white,
by prog. style erect, smooth, green,
stigma white, capitate,
very superior.

One celled(?) Finally 1-seeded.

538 (change) ^{call 537}

Large pea, very long vine,
fls. in racemes on very long
(in fruit) peduncles.

Pod 2-4^(?) nodes - soft-hairy
Cant pinch - & not squari.

Bean black

Along Savalos

also along other stream

539

Small sedge (grass-like)
near mouth of Savalos

540

white (yellowish) flowered vine (erect)
spreading over small trees
Fls. yellowish, in racemes.



Fl. x 1


Petals 6, yellowish (olive)

narrow, not very acute,
each one bearing a stamen at middle

Stamen 6 on short fil. anthers brownish,
2-celled, pollen yellowish.

Style smooth, greenish, stigma ternate =
3-lobed, yellow, smooth.

Calyx small, greenish, scarcely divided.

Ovary inferior, 6-celled (4)  fleshy but small


541

Rather low (4° - 6°) coarse,
spring, large leaves white fl.
Solomon. Mouth of
Sarabos - low place.

542

Aquatic (submerged) plant on
log in Los Savanes.

Peduncles 1 flower

 fl. x1 Calyx of about 8 minute,
pink sepals. Stamens 8, filaments
fleshy, pink, smooth, hypog. Anthers
olive, annate, introrse, 2-celled; ovary
superior, smooth, green, 1-celled, ^{free} ^{cent.} ^{plac.}
Style 2-lobed, stigmas thickened, greenish
Ovules many.

543

Composite weed along La Grana
Fls. in dense heads in axils.

white, disc. only, stigmas
purple (violet)

Frut 544

Green leaved (red-veined) shrub
(small tree?)

alt. lvs, fls. in short
pedicled clusters in axils

Along Savala

545

Large tree (cavase) -
see front.

Fls. on very long. peduncles
short spikes

Along La Grana, etc.

546

Small tree along Savalos
with small whitish fls. in
axile spikes, alt. ovate,
petiolate, entire lvs.

(Perhaps I have numbered
this ?) Deciduous fls.

fls. x 1

Sepals 5, ovate, membranous with brownish
spots (scales?)

Petals 5 small, erect, ~~fragile~~

Stamens 10, fil. white small

anthers 2-celled, yellow

~~style 1, stigma~~

Formis no fruit

547

Woody vine (a weak shrub
with opp. entire, oblong, acute.


acute (a somewhat recurved)

lvs. (short petioles)

Fls. in short clusters, (small heart)

Cor rather few-flowered heads

Along Sandoz & La Jolla

Petals 5, clawed,  yellow.

(² brown in center?)

Sepals 5, Δ , obtuse, brown

² yellow glands? inside of
sepals at base (i.e. 2 at base of
each sepal)

Stamens 10? Fil. whitish, anthers
2-cells. brown, pollen
light yellow.

Styles ~~erect~~², whitish, stigma
somewhat 2 lobed, flattened,
styles hairy.

Ovary superior, deeply 2 lobed
really 2 ovaries.

Bark brown

548

Large Palm (on which ferns
grew) above Castillo.

Red fruit

Trunk short (7⁰ feet), 15" thick,
not rough.

Leaves 12⁰ long, (2 ranked)

Leaflets lance linear, acute,
15'-20' long.

Petiole grooved above, with
short recurved spines along
the 2 edges.

Fruit resting down in
the crown among the bases
of leaves.

In low ground above

Castillo. Spike short, compound,
sessile.

549

Large *Solidago*

Frond. Lvs. lance-oblong
remotely serrate.


Fls. yellow. Pappus of numerous,
fine white hairs.

Corolla, stamens & pistil uniform
yellow. Chaff of narrow,
num. scales = to fls., obtuse.

550

Large *Cassia* with
square prob. Castles
Leaves & Fruit

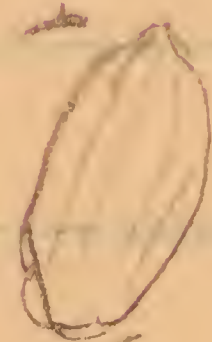
Fls. yellow, 1' or more in diam,
petals obtuse, lower 4 or 5
anthers very large.

 ovary - smooth, green.

551

Tree^(?) with smooth, elong,
striped fruit -

Fruit only.



castillo.

552

Chili Pepper (back of
house at Castles)

Fruit - La Gravel

Flower pale bluish white,
with the ordinary form, stamens
dull v. erect.

Leaf oblong-ovate, entire,
acum., smooth, petioled
alt.

ovary 2-celled, seed flattish,
numerous.

Shrub, branching, cult. v.
rare wild, 40-60 high

553

Tall warm erect Mint.
Common at Castille.

7 mil.

Fls. minute, dull purplish white, corolla
hairy upper lip 2 lobes, lower 3 lobes
lobes recurved. Style purple, stig. brown.
exserted. (on lower part of corolla) Stamens
exserted (" " " ") 4, upper pair shorter,
anthers small, ~~purp.~~ (pollen yellow). Fil. white
hairy. Leaves cordate, dentate, Petioles

554

554

The "Fig" from up the
San Juan.

A good sized, broad, spreading
tree with alt. ob. ovate lance
obtusish leaves, entire
Short petioles & twigs thick
with large scars.

Fruits sessile in axils
of leaves.

du front

555

White flowered weed common along
R.R. Castillo

Plant 1' - 1.5' high, branching
erect.



fl. x1.

Calyx of 4 small reflexed,
ovate green, acute, smooth sepals.
Corolla of 4 spreading (or reflexed)
greenish white, obovate, obtuse
petals.

Stamen 4, alt, erect, fil. white,
anther yellow, 2-celled, annate
(really versatile & introrse)
a tuft of fine white hair
surrounds essential organ.

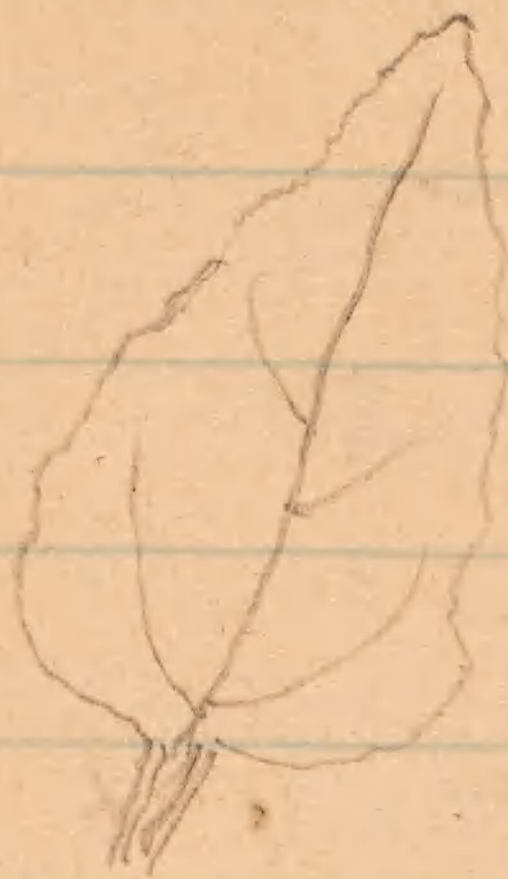
♂ pistil x1

Ovary superior, obovoid,
green, smooth, style erect green, smooth,
a staminal stigma small, terin.
Ovary 2-celled, axile plac.
ovules small, numerous.
leaf (too broad)

556



head x1



leaf x1

Small composite, no rays,

fls. all reg.

Achenes flat, winged (margin)

no pappus.

Recept. narrow, columnar,

no chaff.

Yellowish fls.

On banks at Canillo

557

The yellow (small) flowered shrub
found above Castillo - 2°-5° high
♂ Calyx small, with 5 Δ short
lobes, greenish.

Corolla yellow, monopetal, 5-lobed.

Stamen 5, ^{hypog.} anther yellowish, 2
cells, unilic. Filaments short, alt.
Lobes of corolla white-hairy inside
at base.

Ovary inferior, green.

xx stigmas 2 - style very
short (2 lobed)

ovary (1 or 2 cells, no more)
could not make it out.

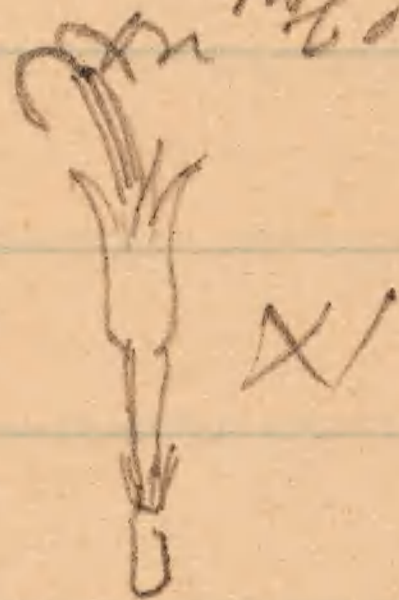
Ovary is really $\frac{1}{2}$ inferior.
(This is the spreading shrub that
at first reminded me of an
umbellifer)

(Found Indigo plant at
Castillo.)

Also Spurge-like (Spurge) wad = ^{very} ~~very~~
5-58.

The coarse, branching thistle
like comp. on ⁱⁿ bottom above Castillo,
4' high.

No rays.



Corolla white 5-lobed, anthers
purple, stigmas linear, 2.

Pappus of short white hairs.
Chaff none.

559

Branching, herb. Solanum, erect,
1st 2nd high on hillside near
Ft. Concho.

Fls. white small,

Fruit black.

✱ Corolla white, anthers
yellow.

560

The prostrate little weed with
small, broadly cordate leaves
(opposite) stipules forming a
fringe across stem. Smooth.

Found near La Grange & on
hill near Fort

Bract superior, Δ , 1 celled, seeds
several. green. smooth.

Stems slender, 3, white

Calyx of 5 lanceolate ~~oblong~~ green
acute lobes (with margin somewhat
scarcions.)

561

The oblong-ovate, (cordate-base)
leaved woody(?) vine with shiny
yellow fls. W. of Castillo (along
creek)

562

The large white-fl. *Eupatorium*
Becomes a small tree, - 4' in diam
& 15' high.

Very common at Cashillo
No rays. Fls all white
Pappus of white (slightly tawny?)
fine hairs (=)

Chaff none
(Found also at Moyroza)
Gray bark.

563

Small hairy Cassia -

Ovary hairy, green.

3 lower stamens very long


Fl. $\frac{3}{4}$ " in diam, petals unequal
greenish.

Leaflets ellip, axistate.

Near fort.

Curved pod.

564

 corolla /

Hairy, branching, erect Mint

Blue-flower - Near fort.

Calyx strongly 5 angled & 18

ribbed, lobe 5 spine-like

all hairy (white (long) hair

extending inward & almost

closing throat

corolla purple, upper 2 lobes

lighter in center & with a
brown elongated spot

The lowest lobe is a hood-like
affair like that of the coarse
mint from Oenothera
style purple, smooth, stigma
purple, unequally 2-lobed.

Stamen 4 on short hairy
filaments, about equal, &
evidently enclosed in the
little hood at first

Castell

Plant with odor a little
like Catnip

565

The climbing, ~~corro~~ parasite
with fls. in spadix.
Spathe yell.-wh. Ovate
mouth enclosing the
spadix $\frac{1}{2}$ in diam & 4'
long & the terminal 3
in berry stamens

(This is similar in structure
to the one in alc. - if not
the same) - Spathe 6 in long
leaf ovate, rounded at
base, acum. petiolate
On tree near Castillo

566

The very spiny, prostrate
(or weak) shrubby spreading

Solanum. Fls. (corolla) violet

calyx green

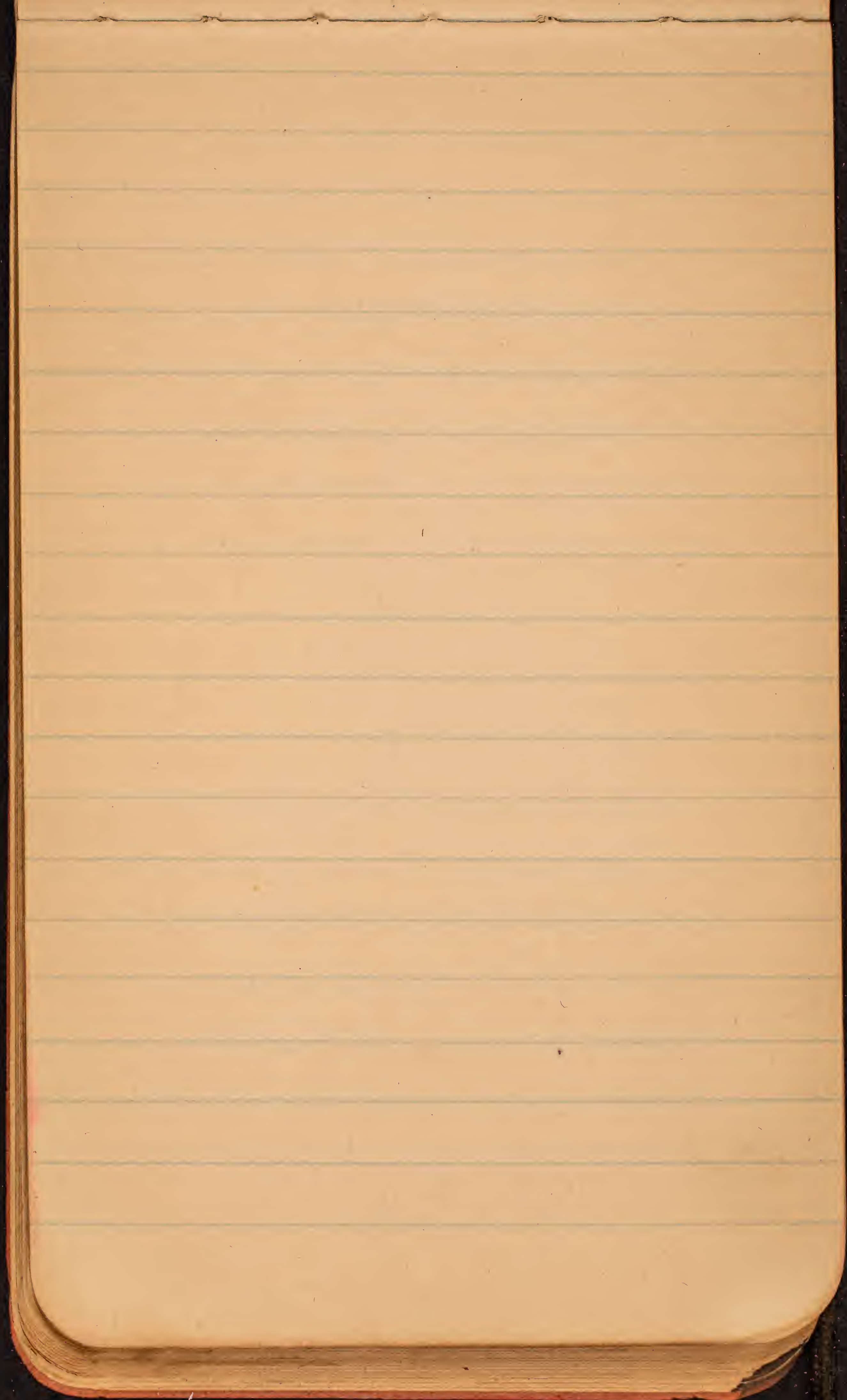
stamens yellow.

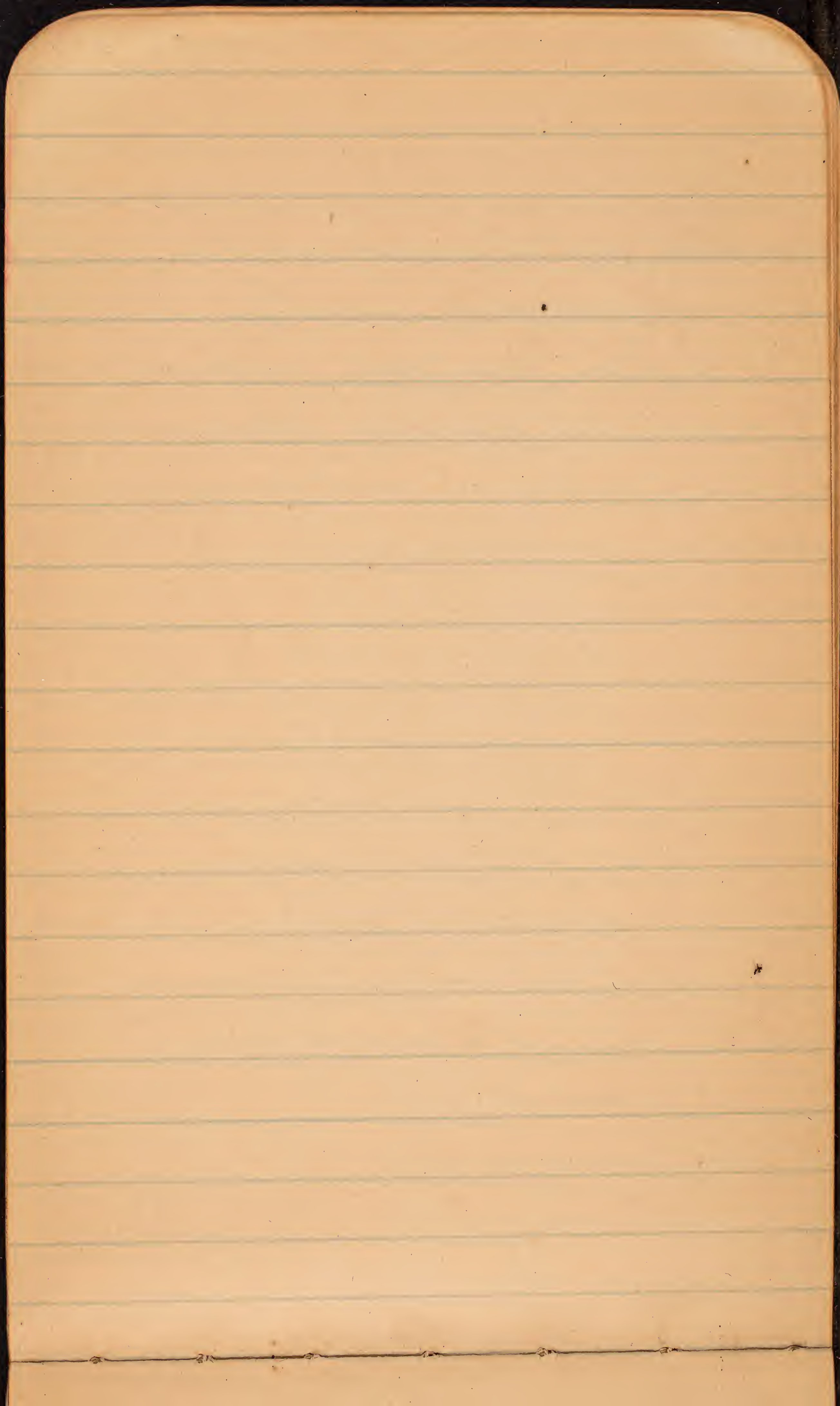
Leaves narrow, everything
except fls. - very spring.

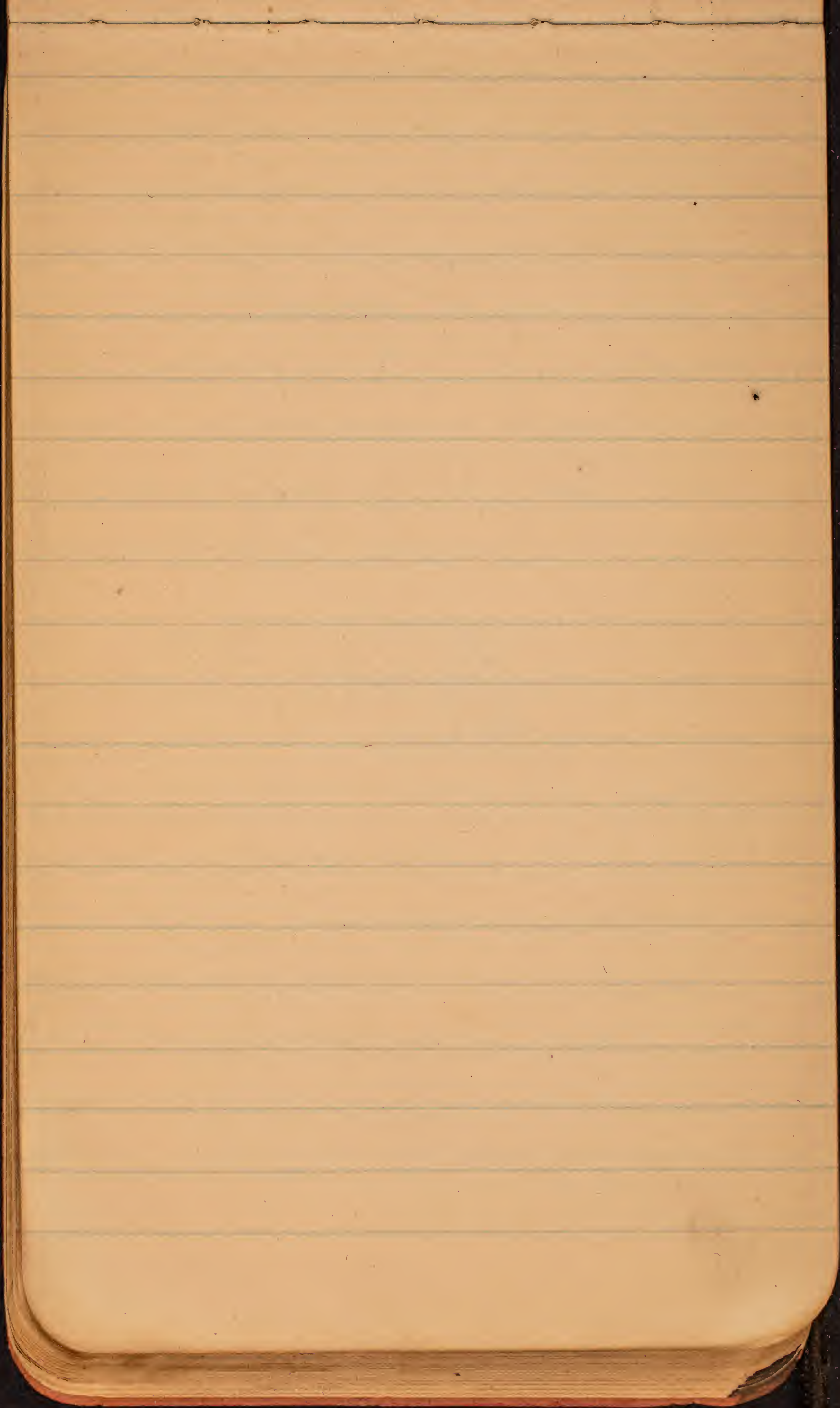
On bottom near castle

565

The climbing, coarse parasite
with fls. in spadix.
Spathe yell.-wh. Ovate.
Mouth, incl.
spadix.







rocky

Manned Pargas
ranch - on
Right bank of
San Juan
12 miles below
San Carlos

Corosa Palm
There are the elongated
seed form on this
ranch.

Mar. 12 - 1892

red clay

12 ft
ranch shells for 100 yds.

15 ft

Run

E | S
W | N

Flat

Producers

Bank 1200 ft

River



Bank literally
packed with clam

shells, some with
valves united

Many sticking by tops

Traced it back over

150 ft up the 2nd

slope, to an elev. of
at least 150 ft

Index to Castillo Spec.

C. = Castillo, J. = Laguna, S. = Savalos.

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552.

Moyusalpha species found
also at San Carlos & Castillo.

S. C. = San Carlos. C = Castillo.

1- C. ^(?)	79- C.	143- C. & S. C.
6- C. [?]		
9- C.	81- C.	146- C. (C)
12- S. C. & C.	83- C.	163- C.
15. S. C. & C.	85- C.	164- C.
22. C.	94- C. ^(?)	178- C.
32. C.	98- C.	185- C.
34. C.	104- C.	195- C.
36- C.	105- C.	197- C. & S. C.
39- C. ^(?)	108- C.	199- C. 108- C.
43- C.	110- C.	200- C.
46- C.	113- C. ^(?)	204- C.
47- C.	121- C.	209- C.
53- C.	122- C.	212- C. ^(?)
58- C.	128- C.	212- C.
66- C.	134- C.	226- C. & S. C.
69- C & S. C.	137- C.	237- C.
74- C.	139- C. & S. C.	239- C.

241-(?) C.?

242 - C.

243 - C.

245 - C.

248 - C.

252 - C. + S.C.

258 - C. (?)

264 - C. (?)

266 - C.

267 - C.

270 - C. (?)

273 - C.

282 - ~~C.~~ C.

284 - C. + S.C.

290 - C.

291 - C. (?)

302 - C.

310 - C. (?)

311 - C.

312 - C.

313 - C - common.

323 - C. (infl.)

72 species.

Cont. (see prev. pages.)

553

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566

2

1882

I.

Lichen - Found log near the
La Guana.

Lichen gray, slender, 1' or more
high, cylindrical, with little
projections all over.

II.

Small Helaginella -
on banks of stream in
deep woods S. E. from
Castillo. Fossils flat,
4'-5' long.

west of Castillo.

No. R.

Brown leaved moss with long
brinds ~~lying~~ ^{standing} out from trunk
of small tree.

Ocyptra with green herbaceous
hairs. Front small, running
downward.

S.

Small, light colored moss, (same as
found on logs on Ocyptra)

in good fruit; short fruit.

Found on logs near the
La Grana.

No. O.

Moss.

This paper has specimens of probably three species of mosses from logs in deep woods west of Castillo. A lot of odd specimens.

No. P.

Moss.

The very long, delicate, slender moss, hanging from branches of trees & shrubs in deep woods west of Castillo.

No fruit.

No. Q.

Lichen etc.

This paper contains a lichen and a — (?) found on small tree in deep woods

x No. K. Moss.

Cylindrothecium-like-

Common on old logs, etc.

Found in deep woods west
of Castillo.

Several No. L. Moss.

Somewhat similar to K, but
leaves looser, & fruit shorter
(capsule), & with longer(?) calyptra.

On logs. N. of Castillo.

Several. No. M. Moss.

Dark green, flat, with acuminate
leaves. Found on logs in
deep woods west of Castillo.

Several. No. N. Moss.

Similar in general appearance to
M. but leaves = N - Same loc. & hab.

Samuel, No. 7.

Moss

Very delicate, compound moss,
Found on log in woods west of
Castillo. Finely beaded, light-green
little fellows. Fruit rather
elongated.

Samuel, No. 9.

Moss

Very small, Hypnum-like moss,
with small fruit & long
calyptra.

Covering dead logs, woods
west of Castillo.

2 No. 9.

Moss

Very, very minute, similar to
9. but fruit & all smaller.
Found on burned log near
Castillo.

1. No. E.

Exceedingly delicate, filary,
light green moss, growing
around a stick (dead branch)
in woods West of Castillo.

No fruit.

1. No. 7.

Moss with narrow, compact, long
fronds, creeping over a dead
log. West of Castillo.

More finely divided than the
following.

No. 9,

Somewhat similar in general
appearance. Fronds small,
directed downward.

(coarser than
No. 7.)

Growing on trunks of trees (standing
out in tufts) in deep woods West
of Castillo. Has teeth of peristome
quite long.

x No. 6.

Very delicate, much branched
spreading moss growing on trees
(especially small ones) & shrubs in
deep woods west.

Fruit small, directed downward.

a few. No. 7 ✓
xi

Very delicate, small moss, growing
on opp. sides of a dead stick
in woods west of Castillo.

Fruit very delicate, cup flaring
above.

Mosses + Club-mosses,
~~Lichens~~ Lichens, etc.

No. A.

Selaginella - Large branching
form. Common in woods
West of Castillo.

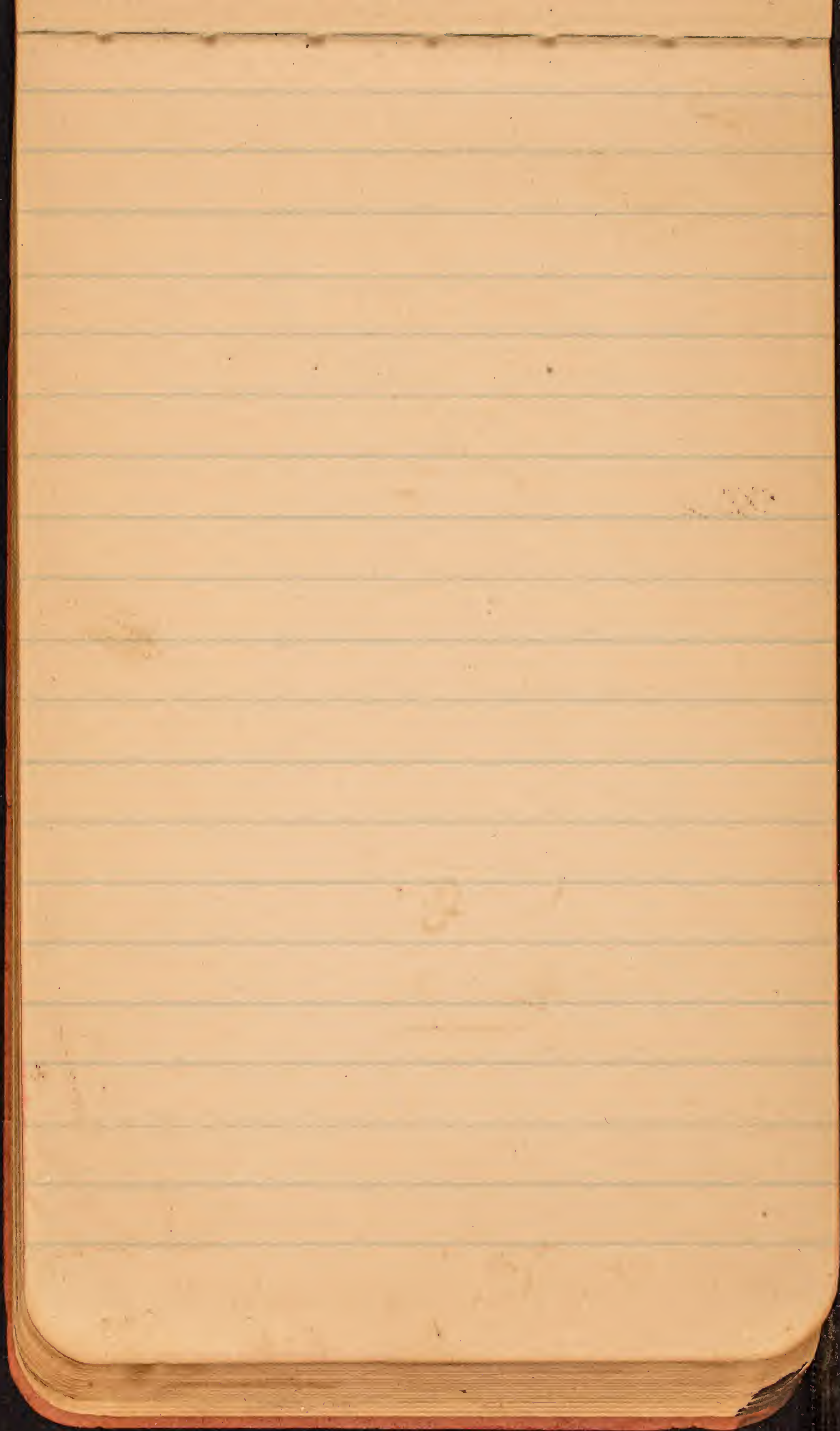
No. B.

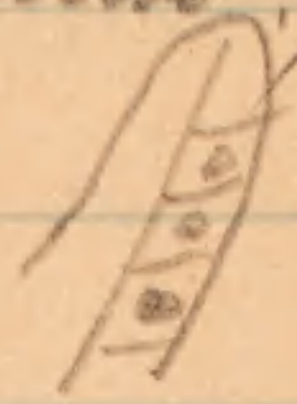
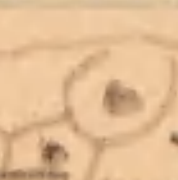
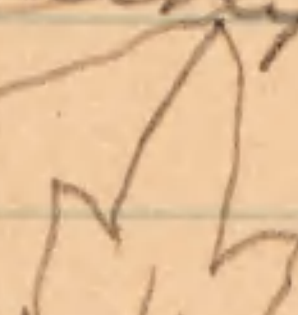
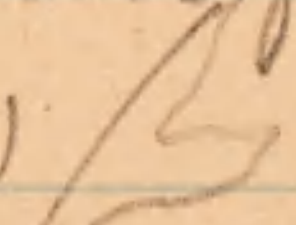
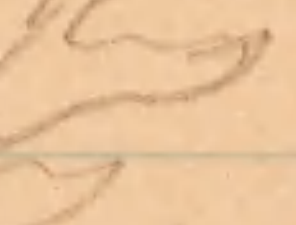
A broader frond, - more like
the Onutipe spec. "Bushy".

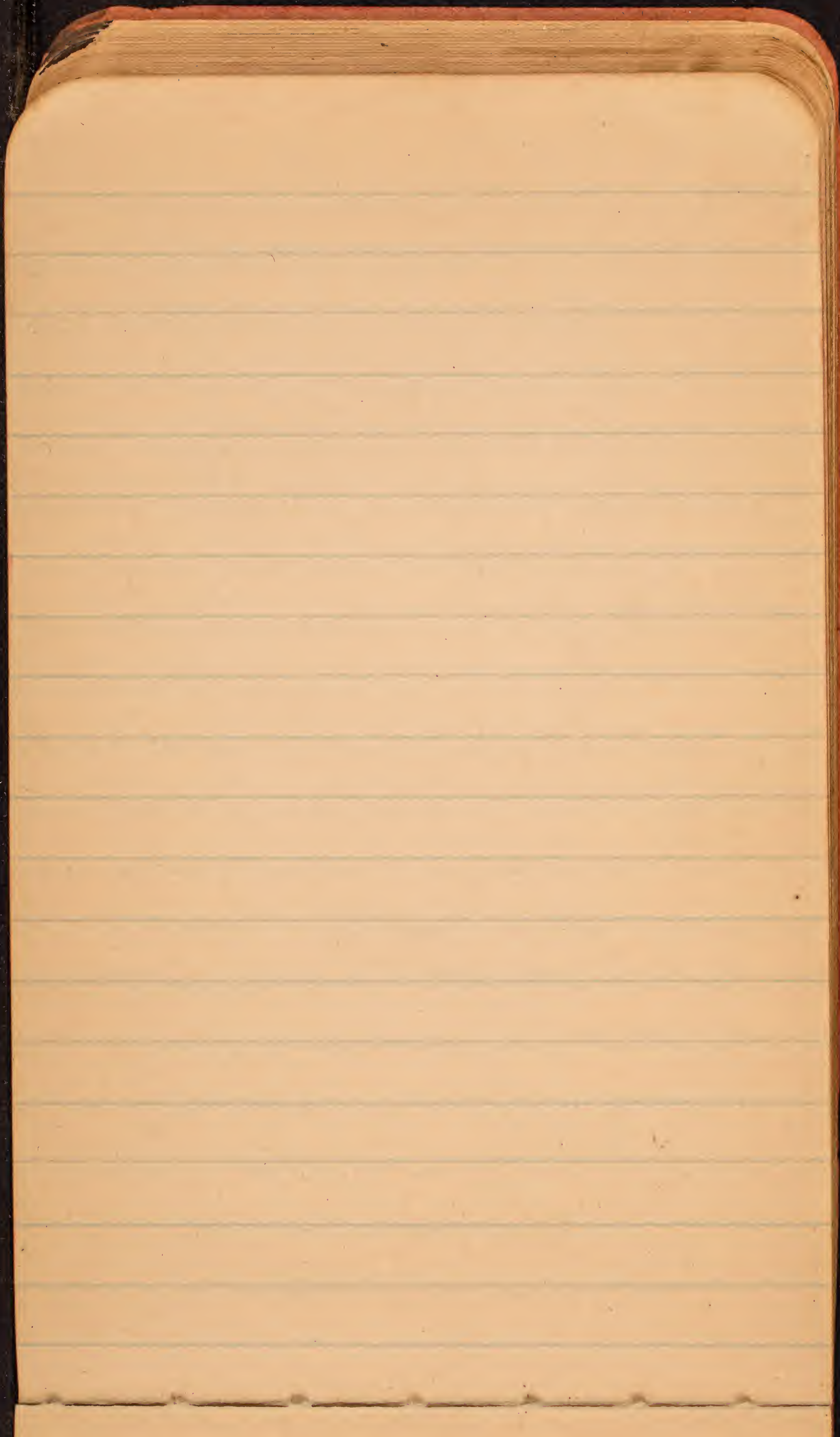
No. C.

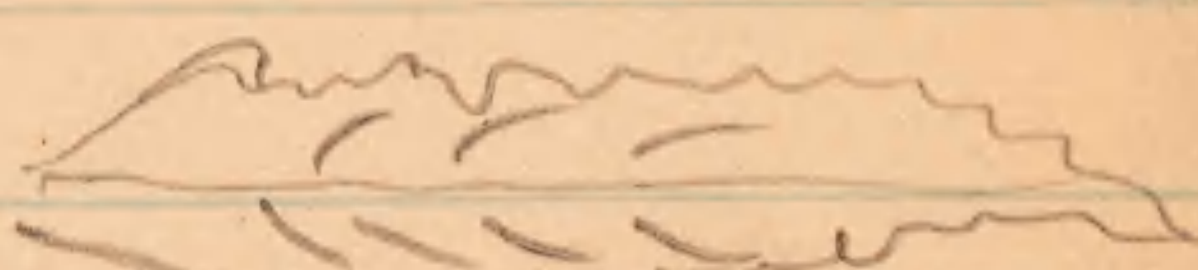



Somewhat similar in general
appearance. Frond small,
directed downward. (Common H.)

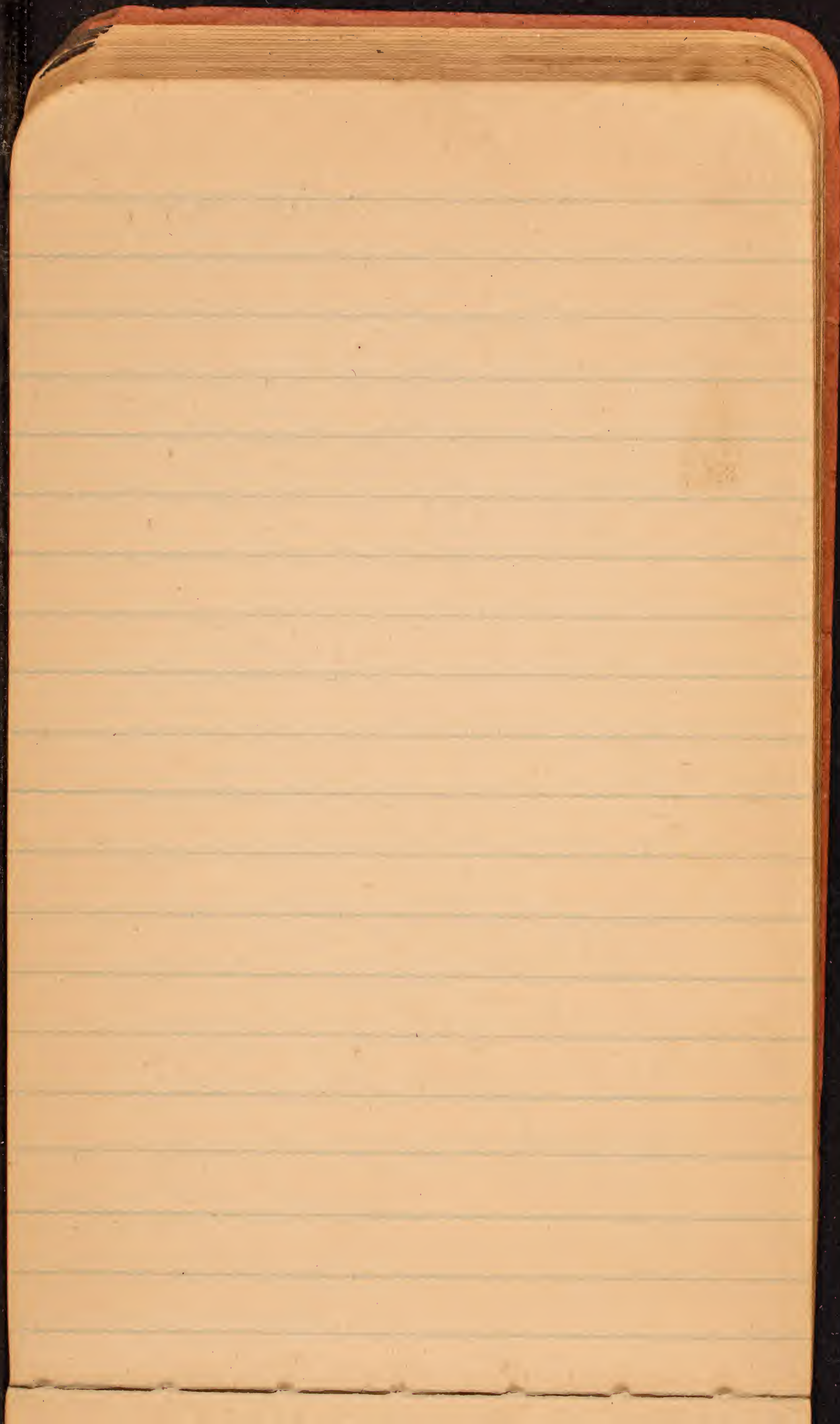
Growing on trunks of trees (standing
out in tufts) in deep woods West
of Castillo. Has teeth of peristome
quite long.



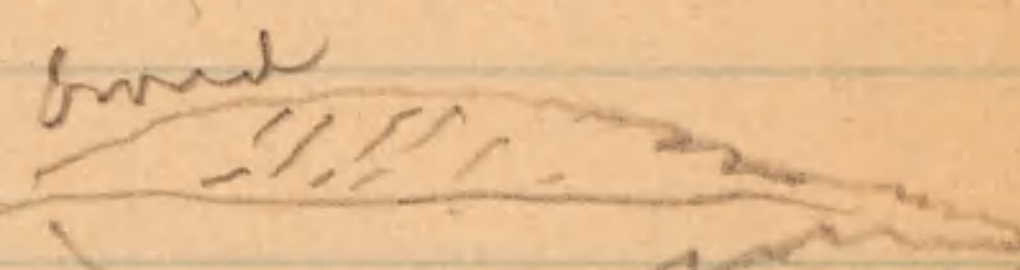
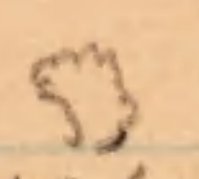
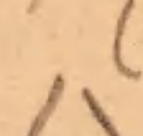
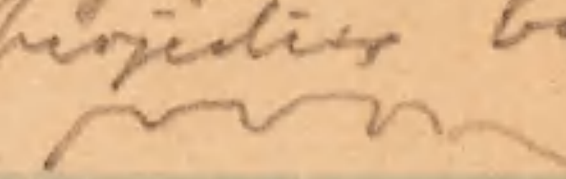
- 39 (PDB) upper surf. indented dots.
- 40 Stag-horn Polypodium (?) La Gran
- 41 - Slender, narrow "  "
- 42 - Danaea -
- 43 Polypodium  Fleishy rootstock "
- 44 Aspidium - 
- 45 - Hymenophyllum (divided)
- 46 - Asplenium - (Adiantum-like)
47. Hymenophyllum - large.
48. Dicksonia ("filosiuscula")
- 49 - Dark green, bristly fern (S.E.)
- 50 - Large Pteropteris (?) 
- 51 - Acrostichum (one) 
- 52 - Similar to 50 - but more divided & larger
- 53 - Cyathea
- 54
- 55 -
- 56
- 57
- 58.

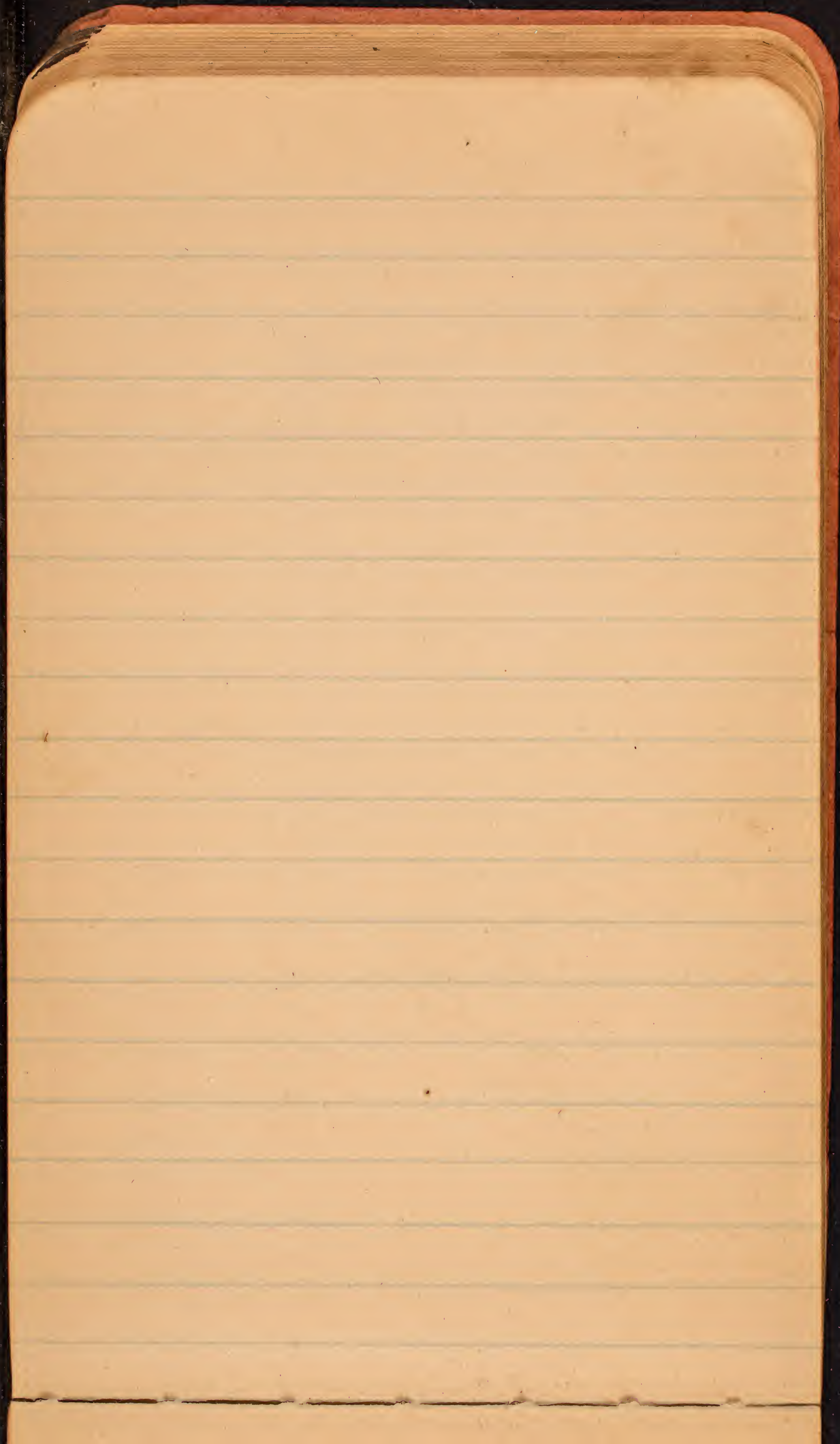


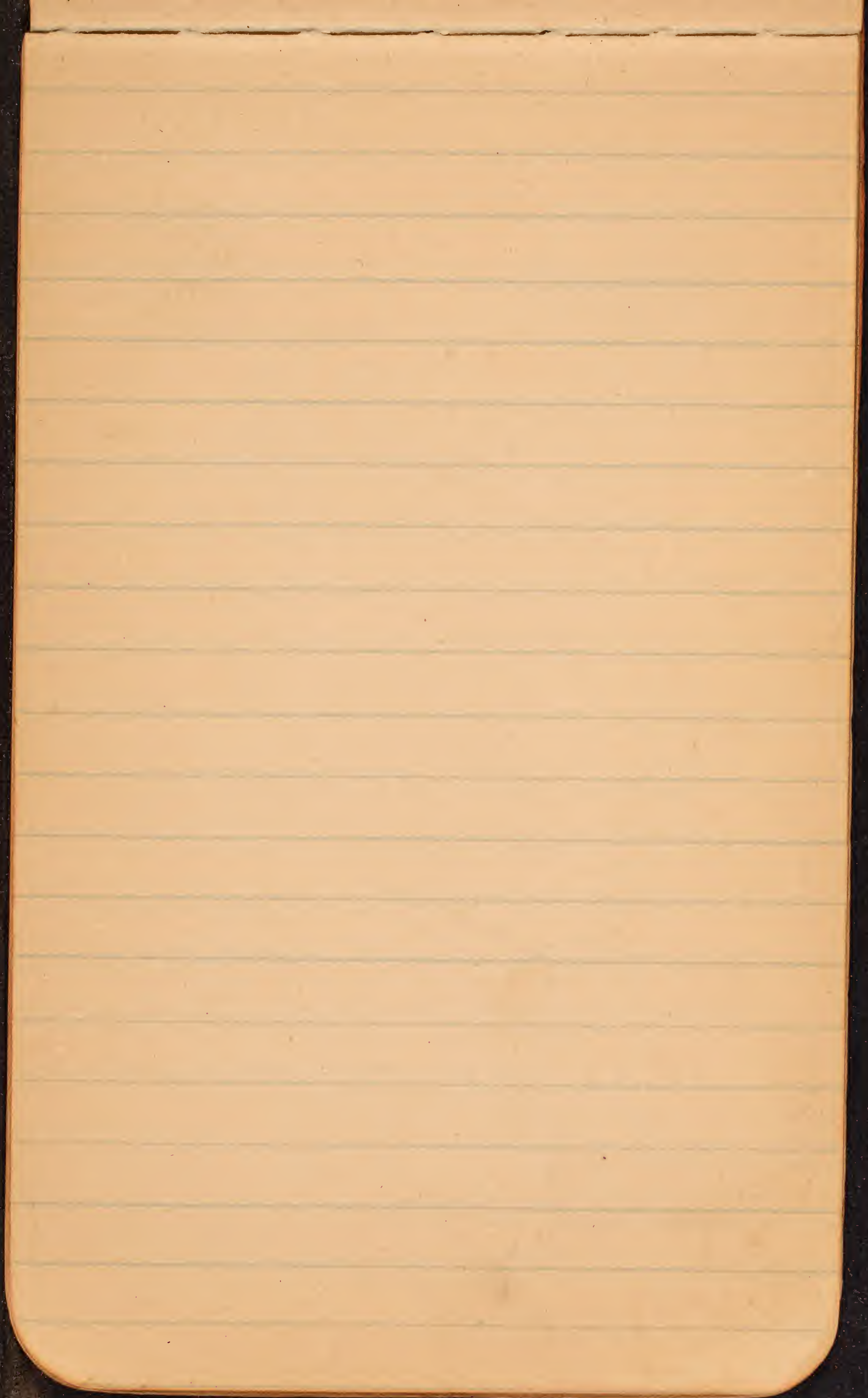
19. Blechnum -
20. Gymnogramma -
21. Polypodium - sori in line in ^{1 pinna} middle of pinnae
22. Hymenophyllum - little one
23. Scolopendrium
24. Adiantum - rusty
25. Aspidium (hepatic-like) on trees.
26. Adiantum - 1-pinnate
27. Lance-linear - fruit in groove back from margin.
28. Small, broad, sori scattered, on trees.
29. Large Pteris.
30. Asplenium - 
31. Phegopteris (C) Very large, Δ.
32. Polypodium - Lance - sori in rows ^{between} veins
33.  Sori scattered - 1 pinnate
34. Aspidium - Thelypteris-like
35. Asplenium - coarse, many lined sori
36. Aspidium - (like no 10) 
37. Pteris-like - pinnae - fruit minute
38. Phegopteris - ~~large~~ Δ (very large)
Lobe runs back 



Ferns

- 1 - Narrow tall - fruit on edges. ^{sterile} Fertil
- 2 - Polypodium - banana plantation
- 3 - Acrostichum - climbing
- 4 - Delicate Pteris
- 5 - Stag-horn Pteris
- 6 - Small Adiantum-like Pteris
- 7 - Schizaea
- 8 - Asplenium - ^(see)  broad
- 9 - Aspidium ^{HH} (?)  Frond lance, entire ^{cordate at base}
- 10 - Polypodium -  3 divided, upper 3 lobes ^(Phegopteris) ^(lobe 37) lobe projecting back.
- 11 - Dichroma -  1 pinnate, ^(see 37)
- 12 - Dichroma - tree fern
- 13 - ^{HH} Aspidium Δ ; hairy - Phegopteris-like
- 14 - ^{HH} Asplenium - ^{pinnae truncate at base} pinnae entire, fruit double
- 15 - Polypodium - tile roof - climbing
- 16 - ^{HH} - (punctate)
- 17 - Vittaria (?) -
- 18 - ~~Asplenium~~ ciutarin





7111

Nephrodium

54 macrophyllum
Bah.

Aspidium - (like no 50) sori
in 2 rows between veins.

Found ~~in~~ -

along San Juan below East


A lot runs back from lower
pinus.



(The great large lance.
Polypodium 4°-5° long
is used for Calentura.)

53 ✓
Cyathus arborescens, var.
12° high (see piece) spec.
fruits 10 ft long.
Whole tree 15° or more
high.

Along Savalos
Fronds 3-pinnate

 pinnule x 1.

✓
51. *aliennum*
Aerostichum ~~aliennum~~
Species 2° high.

Fronds 1 pinnate, sporangia
dark (black?)

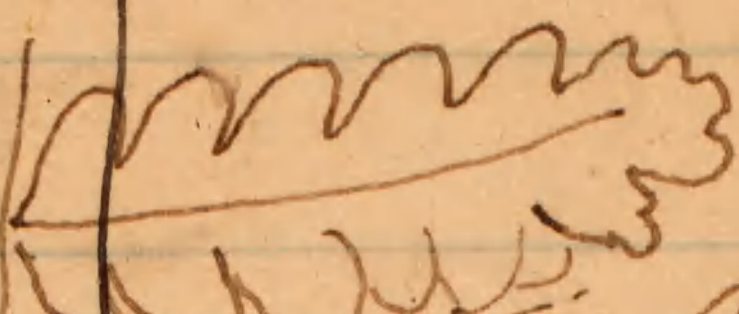
Sterile frond with 5 wide
entire lobes — pinnate.
Deep woods S. W.

Hypoderris
seemannii

52.

Frond ^{Pinn.} nearly 3° long pinnate
(term. half only divided) long-
tapering

Sori large, scattered
Somewhat like (50) in gen.
appearance, but much more
divided, & sori fewer & larger
Stipe brown, only slightly
scaly. Deep wood, on creek bank
S. west.

shape = 

Stipe dark brown, hairy (short).
Grows in tufts S.E. from
Crest. in deep woods.

No Fruit.

||||

50.

Phyopteris draconopterum

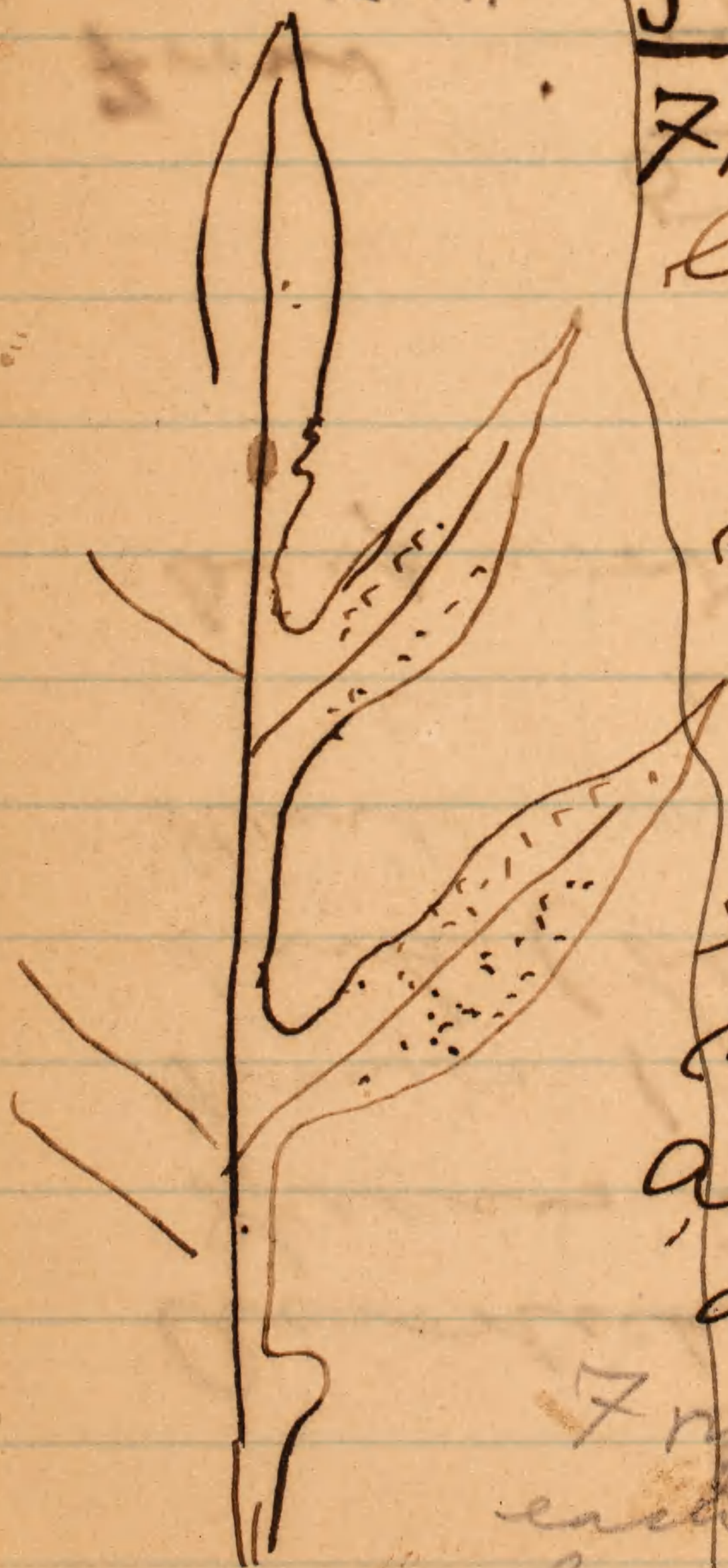
Fronds 2°-2½° ft
long, usually 5
-lobed, pin-
nae small, scattered,
no indusium.

Phyopteris!

stipe dark brown,
scaly.

along creek in
deep woods S.W.

Fruit dots several in
each reticulation (i.e.
between veins.)



III IIII IIII II

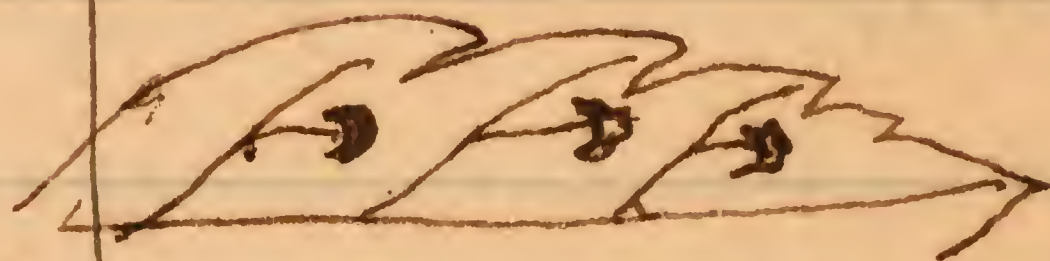
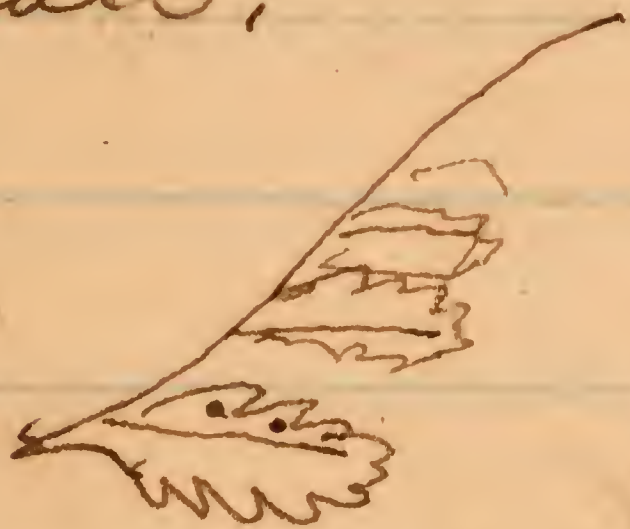
48.

Mephrodium

karniakyannu

~~Dicksonia~~ - (frond shaped as in ^{Baker}
~~filosissima~~.)

Fronds $1\frac{1}{2}^{\circ}$ - $2\frac{1}{2}^{\circ}$ long, twice
pinnate, pinnate with winged
rachises, pinnae deeply cut,
segments sharply serrate or
dentate.



Sori crescent-shaped, numerous
attached on inner line.

Stipe green, hair -
brown scaly at base,
on ground - S.E.

11 see word

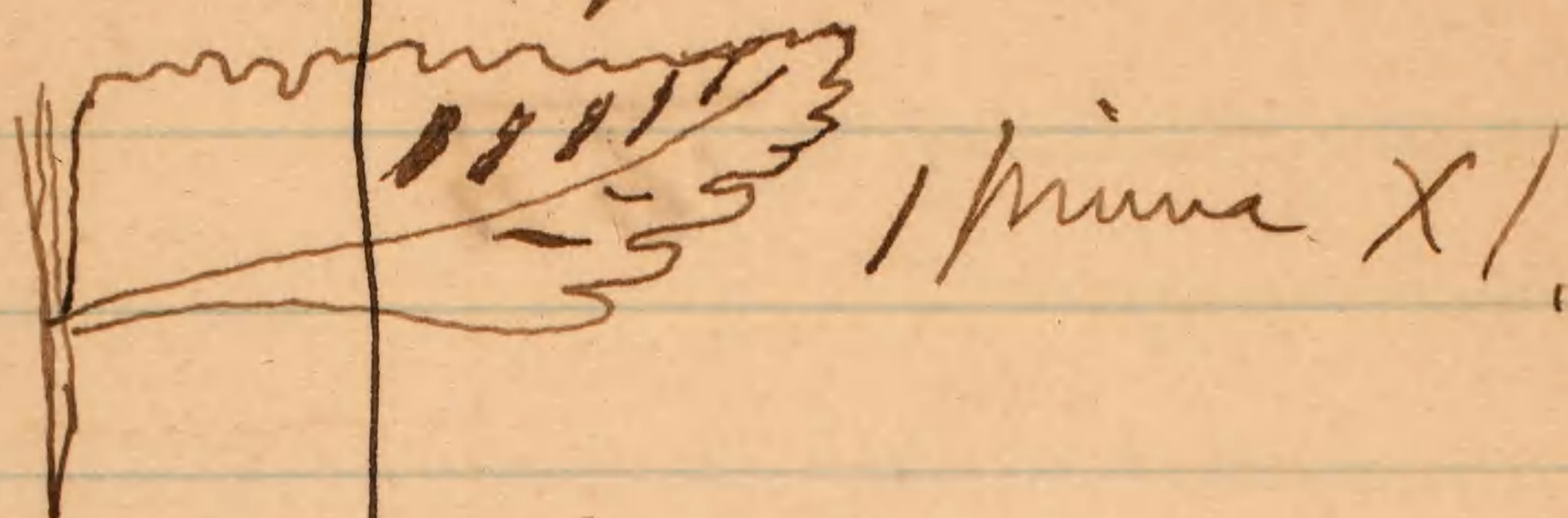
49.

alsophile infectus

Hermitella nigricans

Dark green fern with
2-pinnate fronds, pinnate

Erms in tufts.



47 ✓

membranaceum L.

Trichomenes

Large ~~Hymenophyllum~~
(like no. 22.) found on clay
banks along creek in deep
woods, S.W. from Castles.

May 1st 40. 22(?)

Richardsonia

brassicii

45

Small, delicate pinnately
divided

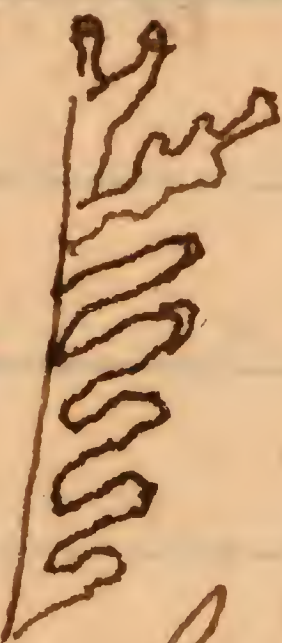
^{small}
on tree

Castillo

Hymenophyllum

in woods S. & W. from

Ferns 1' long.



a little beauty.

46



|||||

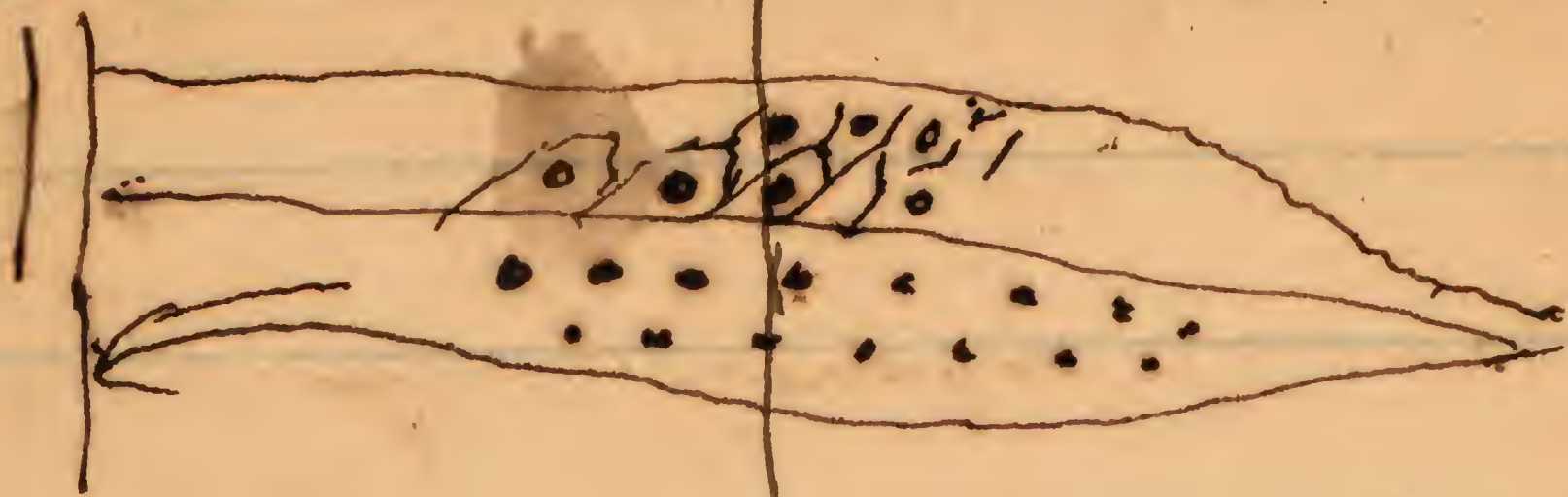
Asplenium

laetum Sw.

Found on rocky
banks of creek in deep woods

S. & W. from Castillo.

Ferns 1 pinnate, stripes
dark green, not shiny.



On fallen tree, near La
Grande.
(Rootstock in alc.)

44.

Aspidium —

trifoliatum

brown.

Frond (green part) $4\frac{1}{2}$ ' long
Stipe 6 in, brown, short hairy
Frondlets large, scattered between
main veins on lower surface

On banks along the San Juan

Davallia saccoloma, Spring.
42. ✓

Davallia — Fronds 2°-4°-
1 pinnate, pinnate lance, entire
dark green 6'-12' long. 1'-1½'
wide; dark green.

Frond lance-ovate
Stipe rough, dark-brown.

Fruit around margins, in a
sort of groove.

In low place (on bank) along
the La Guama.

Pinnae crenate or serrate at
apex & without fruit.

43 ✓

Polypodium coriaceum
— with fleshy, green,
rusty-scaly (small) rootstock.

Fronds 12°-18° long, 4'-4½' broad

1-pinnate pinnae lance.

Fruit in two rows on each
side mid-vein, sori small.

side of mid vein.

The upper surface of each pinna
has row of white indented dots
(pits) near margin.

Equisetum No. 40 ✓

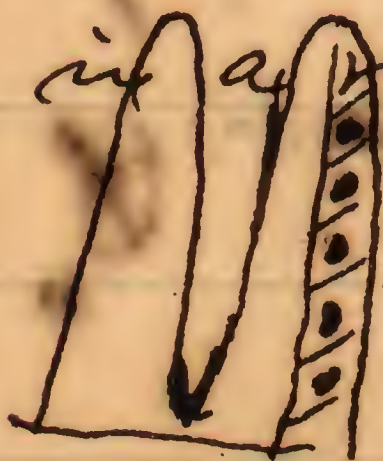
The minute stag-horn fern found
on fallen tree near the La Guana.
Fonds $\frac{1}{2}$ ' - 1' long, in tufts.

Fruit dots large, along middle
of each lobe; no indusium(?)

No. 41 ✓

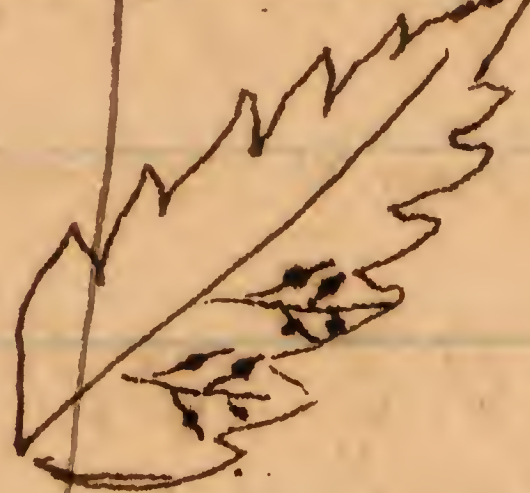
pectinatum

Slender long, narrow *Polypteris*
Fonds 20' long, 2' wide, 1-pinnate
pinnae entire, oblique, ~~very~~ medium sized
in a row on each side mid vein
6 to 10 in a row.



Stipe dark brown, short hairy
On log near the La Guana.

The lower pair of pinnæ have
each a lobe extending back.



Stipe coarse, brown-green, rough
with obscure spines.

Grows along La Guana.

Nephrolepis cordata

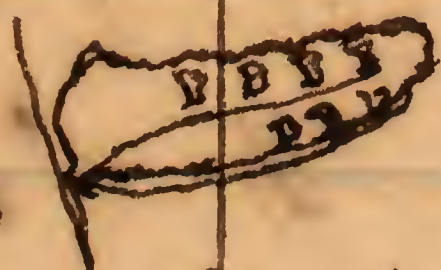
No. 39, ✓

Small fern, 4'-14' long. On
fallen tree near the La Guana.

Fronds once pinnate. $\frac{3}{4}$ ' - 1' wide,
1-pinnate, pinnæ auricled above.

Stipe short, brown, somewhat scaly.

Pinnæ crenulate.

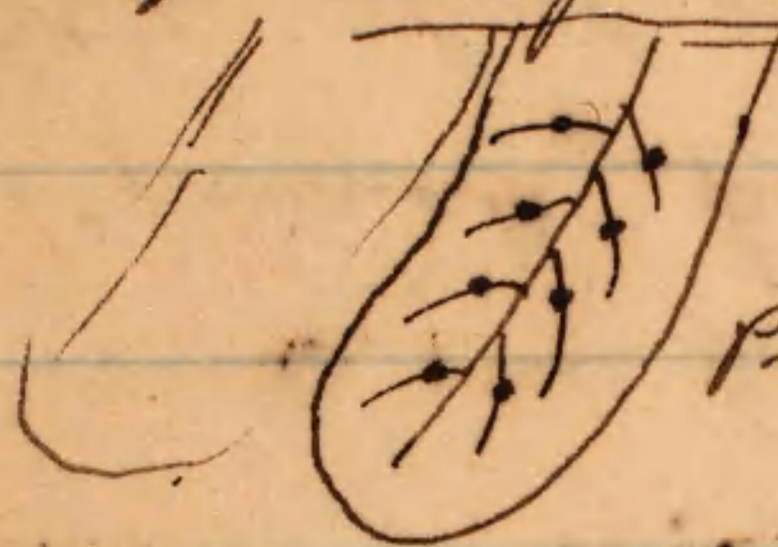


Indusium crescent
shaped, attached along inner
line, sporangia in 1 row on each

P. (Isomoptera) tetragonum Sw.

No. 37.

Long pinnate frond, - pinnæ
(but not frond) Pteris-like,
again pinnate



Pinnule

Sori minute,

could not tell

about inclusion.

Pinnules crowded.

Stipe long, green (purplish) smooth

Fronds 4 ft. long.

Found along La Guana.

No. 38

nephrodium

effusum.

Bak.

Frond broadly Δ Lower part of
Pinnæ 18-20' long.

Whole frond 3 or 4 ft - 3 pinnate

Segments sharply cut.

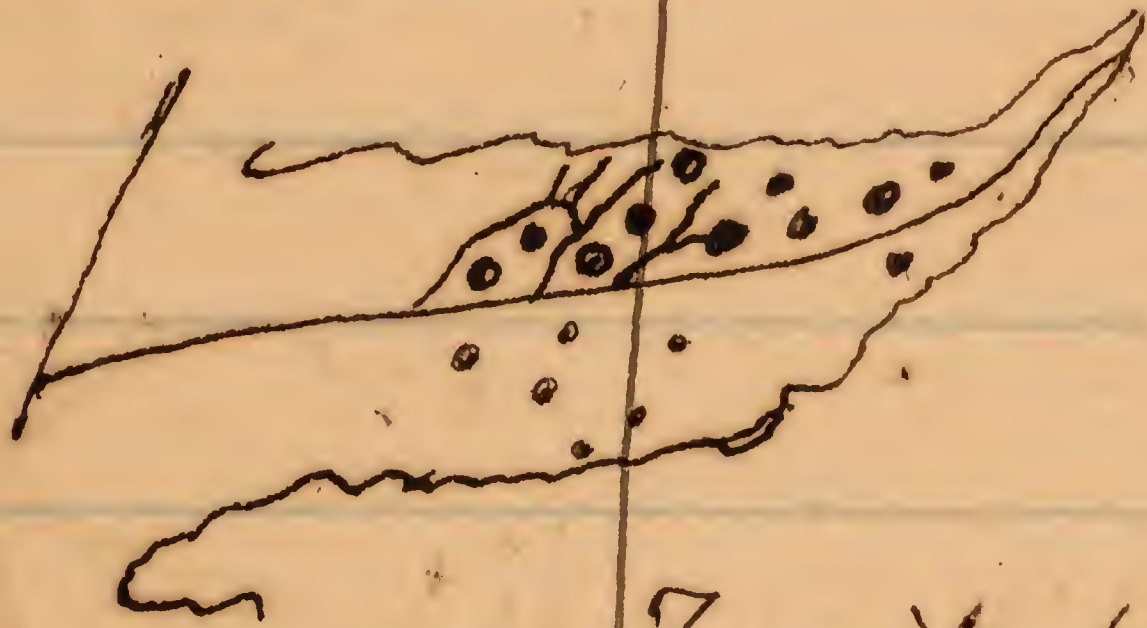
A *Phegopteris* (there does

seem to be a trace of an inclusion
however) Sori small.

~~Aspid~~ *Nephrodium cicutarium* Bak.
No. 36. ✓

Some what similar to no 10
in general ap. Frond Δ but
not distinctly 3 lobed, & no lobes
projecting back. Indusium shield
shaped distinct.

2-compound. Pinnules crenate.



Fruit dots in spaces
between veins.

Stipe brown, hairy.

Found on banks along
La Juaia.

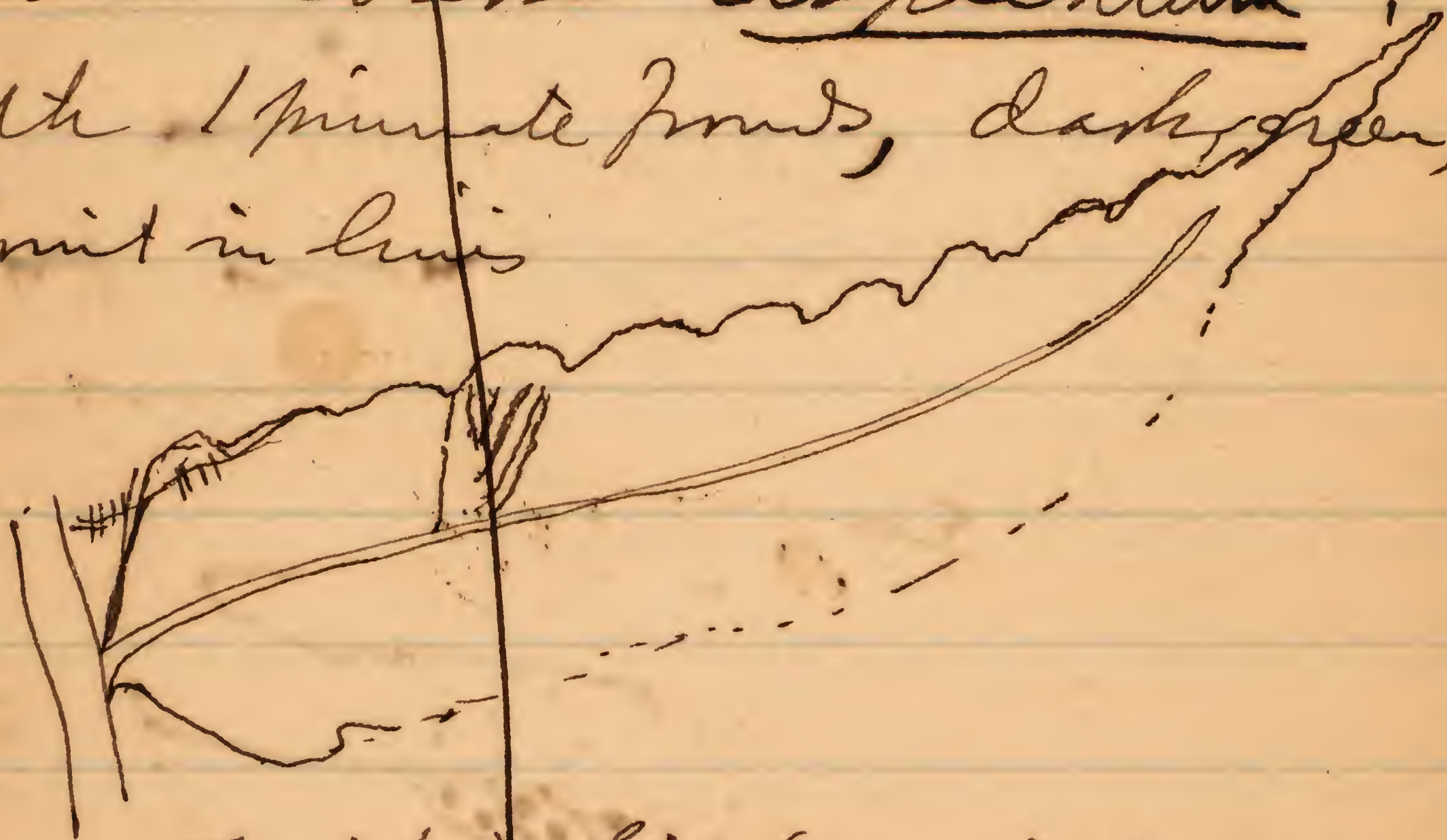
Fronds deeply hairy above

Indusium crescent shaped.

No. 35,

altidifolium?

Rather coarse Asplenium with bipinnate fronds, dark green, fruit in lines



Fruit in lines (narrow) along veins.

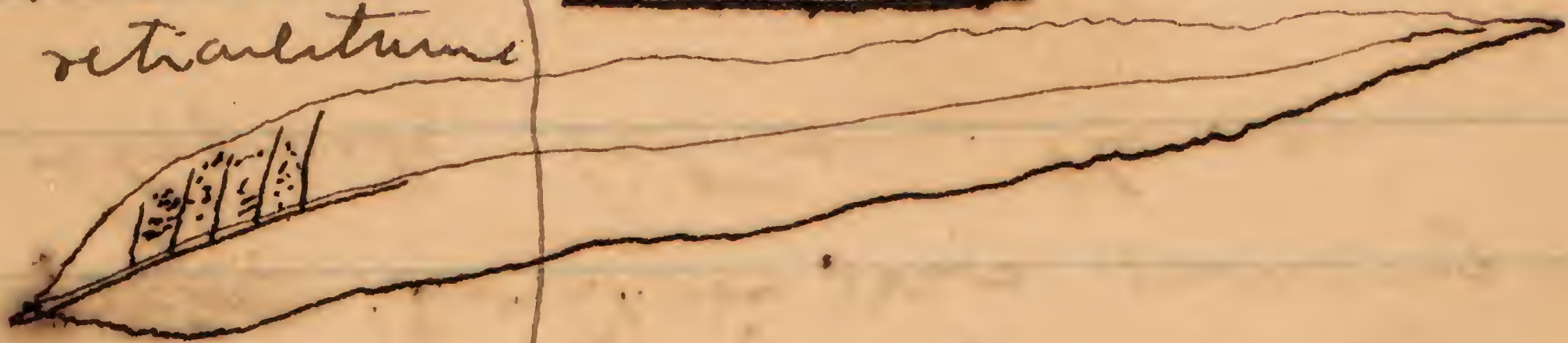
Stipe thick, greenish, spotted with purple. Fronds 2' - 3' long
growing on wet bank along the
La Guana.

Stipe hollow.

No. 35

Merisium
reticulatum

No. 33. ✓



Fruit dots irreg, sporangia scattered,
no indusium; sporangia somewhat in
clusters between the veins.

Frons 15' - 24' long, sterile a
little broader.

Stipe green, not scaly,
Frons along La Guana & in swamp on
Pellao's ranch.

No. 34. ✓

Nephrodium *conterminum*

~~*Aspidium*~~ - fronds along the

La Guana riv. in clearing. Grows

in tufts 1½' - 3' high.


(May be same as _____)

General aspect of *Aspid.* ^{*thelypteris*} *noveboracensis*



Frons finely hairy above

No. 31.

Rheopteris ~~punctatum~~ ^{Thunb.} ?
— large Δ from
3°-4° long, 2 compound, lower
pinnae long 
Stipe green, scaly at base & smooth
above. Pinnules dentate.
No indurium
In low place west of Castillo

No. 32. ✓

Polypodium ~~crassifolium~~ ^{crassifolium} growing on tree
west of Castillo. 2'-2½' broad.
Fronds 1°-2° long, in tufts,
entire - lance, tapering to base
acutish or obtuse.
~~Fronds~~ Sori in rows running out
obliquely between the veins.

Pteris aculeata. I suppose
(the number was lost.)

No. 29

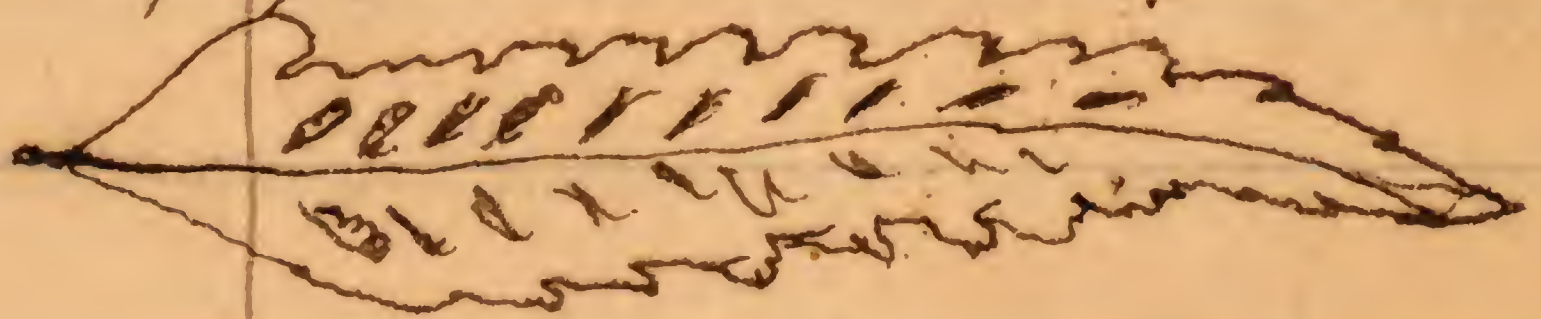
x Large Pteris, — somewhat like
aquiline (but seems to me finer.)
Fronds broadly Δ , with 3
main divisions, growing
(mostly single fronds) in deep
moist woods, N.W. from Castillo.
Free.

x

No. 30. ~~###~~ ~~###~~ etc

Asplenium auritum. fronds 8'-15' long,
in tufts; stipe blackish at base,
rather smooth, greenish above.

Pinnate



Fronds once pinnate.

Growing on tree, & some on
ground in low ~~place~~ ^{place} in
a clearing above Castillo.

X

No. 27.

Jaenitis angustifolia
Very narrow frond, linear-lance,
entire.

Frond. in groove (interrupted), a little
back from margin.

On tree in low woods N.W.
from Castillo.

10' high. Fronds along creeping rootstock.

X

No. 28.


Hemionitis
citrifolia Hk.

Small fern; fronds obovate, acute,
entire, 2'-3' long. On small
trees in ~~low~~ woods N.W. from
Castillo. In lines on creeping
rootstock. No indusium.

Sporangia in little irregular
scattered clusters.

No. 25. ✓

Long Nephrolepis - ~~like~~ ^{acuta} ~~Asplenium~~
growing in drooping tufts on
trees (not high) in low woods
N.W. from Castillo.

Pinnæ with margin as 
Fruit dots near margin, in one row
on each side of midvein.

Pinnæ [♀] curved above - at base
grows 3° or more in l.

No. 26. ✓

x Adiantum ^{Kaulfussii,} with only 1-pinnate
fronds. 6-8 pairs of pinnæ.
1° - 1½° high.

Grows in small tufts in low
woods N. West from Castillo.

Asplenium No. 23
~~Scolopendrium~~ ^{separatum} (Asplenium)

On trees in deep, low woods, N.W.
from Castillo.

Fonds entire, 1°-2° long, in
clusters. Rootstock a short, scaly,
compact large bunch.
Stem long, on veins.

x No. 24 ✓ ^{oblongum}
^{tetraphyllum}
Adiantum ^{hirsutum} — — black, rusty-
scaly stipe. (Same as
~~Onoclea~~ ^{R.})
Found in low woods, N.W.
from Castillo.
Free.

No. 21. sororium

Polypodium — In general
appearance like no. 14.

Fronde pinnate, 2° long.

Pinnate entire, simple sori
in a line on each side of mid-
vein, about $\frac{1}{2}$ way between
mid vein & margin.

Pinnate somewhat crenulate.
In deep woods west of Castillo.

x

No. 22. ✓

Delicate ~~Hypoleucomorphum~~ Trichomanes reptans, Sw.
~~Trichomanes~~ (?) creeping by
rootstock on trunks of trees.

In deep woods west of Castillo.
Fronde palmate.

no fruit, (2)
(1)

no. 18.

Aspidium semiconolatum

~~Aspidium (exaltata?)~~

Fonds 2-4' long. In tufts
along banks of small stream
west of Castillo. Very prominent
here. Pinnule ^{above} ~~free~~ below.

X

No. 19. ✓

Blechnum ^{occidentale} Same as no.

— from Ometepe.

Along banks below Fort at Castillo.

No. 20 ✓

Gymnogramme ^{tortuosa} Same as no.

— Ometepe.

On banks below Fort, Castillo.

✱

No. 15.

Polypodium ^{peruvianum} climbing on
tile-roof. Hanging from roof.
Frons entire, fruit in one row
on each side of midrib.

Castillo. Fronds 3'-6'.

No. 16. [✓] phyllitis

Polypodium (2) — (2) Found on
tile roof with no. 15. Used
for fever.

Fronds entire, punctate with
dots.

No fruit.

No. 17

Polypodium
angustifolium

Pittaria (?) — (2) Found
with 15 & 16. Fronds
very narrow. 6'-

Indusium cup-like

Fruit in woods S.W. (there was almost no stem). 2-compound

No. 13.

Neph. cicutarium

Triangular Aspidium, —

hairy, with general aspect of
Phegopteris hex. 15" - 24"

Indusium attached by inner
edge, making sori somewhat
crescent shaped. Sori rather
large.

In deep woods ^{West} ~~W.~~ of Castillo.
Free.

No. 14

~~grandifolium~~ Sw. sylvaticum

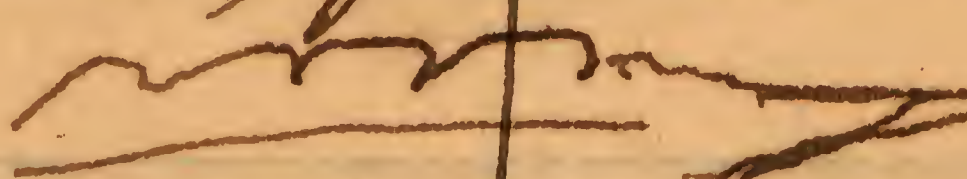
Asplenium — Fronds pinnate,
pinnate entire, truncate at
base (or auricled above)

Sori very long, double (on each
side of vein) — Fronds 10" - 1 1/2'

In deep woods ^{West} ~~W.~~ of Castillo
Free.

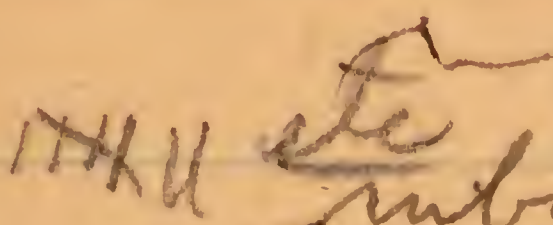
P. (Goniopteris) tetragonum Sw.

No. 19.

~~Dichroma?~~ Fronds - $1\frac{1}{2}^{\circ}$ - 3° long.
1-pinnate, pinnate numerous,
each 


Fruit dots small, on middle
of vein.

Found in deep woods West
of Castillo. Free.

X  etc
subgimms
~~Dichroma?~~ No. 12.

~~Cyathus~~ - Tree-ferns. Stem
was about $1\frac{1}{2}^{\circ}$ long, and
1" in diam (or more). The
fronds were about 2° long each,
rachis spiny.


~~No fruit.~~

 - pinnate

Growing in deep woods
West of Castillo. Free.

Called Manuel Leon by natives.

Neprodium endressi
No. 9.

Aspidium - ? - Indusian
lunate, , crenulate on outside,
attached by concave edge.
Frond lanceolate, entire, base
cordate. 12'-18' (?) West
Found in deep woods ~~se.~~ of
Castillo. Free.

Aspidium trifoliatum
No. 10.

Polypodium - Frond broadly
 Δ , 3 divided, upper lobe ~~with~~
3 lobed, each of lower with
a lobe projecting back. Sori
large, scattered.
In deep woods, free. West
Castillo. ~~se.~~ of
12'-15' high.

Growing on hillsides in deep
woods ~~East~~ West of Castillo.

1111 No. 7. ✓
Trichomanes ^{elegans} Fertile fronds, narrow,
undivided. Sterile pinnately
divided. 8' - 12' high.

On banks of a gulley in
deep woods ~~East~~ West of Castillo.

No. 8. ✓
Asplenium - with lanceolate
undivided fronds, rounded or tapering
toward base, sori elongated, on
veins, fronds serrate toward
apex. Found in deep
woods ~~South~~ West of Castillo.
Free 1° - 2° high

Pteris quadrangula

no. 4.

var.

Rather delicate *Pteris*. ~~*beautifolia*~~

Frons triangular.

8'-20' high

Pinnate 5 or more.

Growing in deep woods, - free.

~~West~~ of Castillo.

L

Jaenitia

No. 5.

~~*furcata*~~

~~*Adiantum*~~ - Stag-horn Fern.

Small form - palmately divided.

Growing on a tree (on side of trunk). West of Castillo

6'-8' high.

More common
N. West.

No. 6

~~*Adiantum dolosum*~~

~~*Pteris*~~ (*Adiantum*-like) small,


fronds 3-pinnate.

The sterile fronds often undivided

narrow-heart-shaped.

6'-10' high

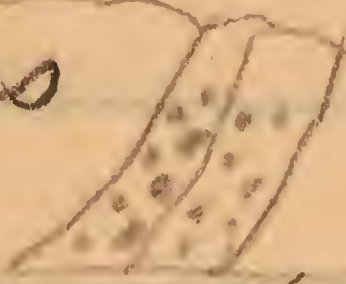
No. 2. ✓
Polypodium ^(Goniophlebium) crenatum
Indusium none.

Ferns 1-pinnate, pinnate lance,
cordate (somewhat) at base, margin
toothed so  15' long.

Pinnate 5 pairs.

On banana plantation, Castillo.

Maybe same as



No. 3 ✓

Climbing Acrostichum sorbifolium

Climbs on trees, etc. by its rootstock
(slender) and has often 2 or 3
tufts of fronds at some distance
from each other. Sterile

fronds plentiful, fertile just
coming in, green, narrower,
the sporangia covering lower
surface. Runs up 2°-7°.

Common in woods ^{West} ~~East~~ of Castillo

Ferns of Castillo, La Juan,
and Sabalos.

(When no loc. is given Castillo is understood.)

Dictyoxiphium panamense.

X

No. 1

Fern with entire narrow fronds, fertile narrower. Spermangia in marginal groove. Grows 1' - 2½' high.

Found in woods, growing free,
west
~~South~~ of Castillo. Also N. W.

